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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,977	11/30/2000	Won-Sung Choi	YPL-0014	2126

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EXAMINER

KACKAR, RAM N

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 04/16/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/726,977

Applicant(s)

CHOI, WON-SUNG

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification has not described how the combination of the allow/blocking valve and the check valve is controlled to make excess ozone flow to ozone remover.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claim 1 and 12-14 are rejected under 35 U.S.C. 102(a) as being anticipated by Horie (US Patent 5928428). Horie discloses a thin film deposition apparatus comprising, a reactor (Fig 1-1), inert gas and reaction gas supply (Fig 1-5a and 5b), an exhaust pump (Fig 1-9), Ozone gas supply (Fig 1-5c), a heater (Fig 1-2) capable of heating the chamber at least to 700 degrees C. Claim 14 is an intended use and does not structurally distinguish over Horie.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2-3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Nozawa et al (US Patent 5290381). Horie discloses an ozone generator (Fig 1-12) main valve to control Ozone (Fig 1-5c), a transfer unit valve to allow the Ozone to pass through to the reactor (Fig 1 valve left to the top heater) and an additional transfer unit valve (Fig 1 valve right to the top heater). These two valves could provide process and thermal treatment Ozone transfer units. Horie does not disclose an Ozone control unit to allow a certain amount of Ozone to flow to Ozone transfer unit. Nozawa et al disclose a Gas control unit comprising an automatic pressure valve which can allow a limited part of gas from a source to flow to a reactor in case of higher pressure at the source (Fig 3-74,75 and Col 6 28-40). Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to connect the automatic pressure valve between main valve and the Ozone generator so as to remove excess Ozone and send to Ozone remover, reduce pressure up stream of transfer units within predetermined limits and allow only predetermined amount of Ozone to the reactor. Ozone removers are well known in the art (US Patent 5976471 discloses a Ozone decomposing filter to convert Ozone to Oxygen).

6. Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Nozawa et al (US Patent 5290381) and further in view of Tanaka (US Patent 5091207). Nozawa et al do not disclose a selection transfer member to selectively transfer Ozone to either reactor or to exhaust pump. Tanaka discloses selection valves to switch main gas to reactor or exhaust pump (Fig 7 413/414 or 424/425). Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to provide for

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switching the Ozone line either to reactor for normal use or to exhaust pump for purging the line for cleaning purposes.

7. Claim 6-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Nozawa et al (US Patent 5290381) and further in view of Limb et al (US Patent 5352615). Horie discloses single valve Ozone transfer units for process transfer and thermal transfer unit but does not disclose a mass flow controller and an other valve in sequence for each. Limb et al disclose a valve and an MFC in sequence in configuration similar to the one cited in the claim, one for process transfer (See 311) and the other for thermal treatment transfer unit (See 312). Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to replace the single valve transfer units with the configuration of Limb et al so as to be able to control Ozone flow accurately and provide isolation between the two gas lines. Claim 8 and 9 are for intended use and provide no structural distinction over Limb et al. Mass flow controllers of the claimed range are well known in the arts.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horie (US Patent 5928428) in view of Nozawa et al (US Patent 5290381) and further in view of Nishikawa et al (US Patent 5470390). Nozawa et al discloses an automatic pressure control valve for removing excess Ozone but does not disclose a combination of shut off valve and a check valve connected between main valve and Ozone remover. Nishikawa et al disclose a check valve in series with a shutoff valve, the combination connected between two gas lines to control flow through this combination in one direction only. Therefore it would have been obvious to one having ordinary skill in the art at the time invention was made to connect the shutoff valve and a check valve to provide another path for the excess Ozone to reach the remover.

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9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6004397

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 703 305 3996. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703 308 1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

RK
April 12, 2002


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700